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**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

**Docket No: Q80067**

Jee-hong MIN, et al.

Appln. No.: 10/824,648

Group Art Unit: 2875

Confirmation No.: 7696

Examiner: DZIERZYNSKI, EVAN P.

Filed: April 15, 2004

For: **LIGHT GUIDE PANEL WITH OPTICAL DEFLECTOR AND EDGE-LIGHT TYPE  
BACKLIGHT SYSTEM**

**SUBMISSION OF APPEAL BRIEF**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: February 13, 2007



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**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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**I. REAL PARTY IN INTEREST**

Based on the information supplied by the Appellant, and the best of Appellant's legal representative's knowledge, the real party in the interest is the assignee, SAMSUNG ELECTRONICS CO., LTD. The Assignment was recorded on August 30, 2004, at Reel 015739, Frame 0926.

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**II. RELATED APPEALS AND INTERFERENCES**

To the best knowledge and belief of Appellant, the Assignee and the undersigned attorney, there are no other appeals or interferences before the Board of Appeals and Interferences (“the Board”) that will directly affect or be affected by the Board’s decision in the present Appeal.

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**III. STATUS OF CLAIMS**

Claims 1-19 are all the claims pending in the application. Claims 15-19 are allowed.

Claims 1-14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kraft (U.S.

Publication No. 2003/0147259) in view of Umemoto et al (U.S. Patent No. 6,616,289).

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**IV. STATUS OF AMENDMENTS**

No amendments have been made in this application.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

**Claim 1:**

Claim 1 relates generally to an edge-light type backlight system (paragraph 02 of the specification).

Claim 1 recites: a light guide panel (e.g., element 110 of Fig. 3; paragraph 39 of the specification) including a light incident surface into which light enters (e.g., element 112 of Fig. 3; paragraph 41 of the specification) and a light emitting surface from which light is emitted (e.g., elements 114, 115 of Fig. 3; paragraph 41 of the specification).

Claim 1 further recites: a rod-shaped light source which projects light to the light incident surface (e.g., element 120 of Fig. 3; paragraph 41 of the specification).

Claim 1 also recites: a polyhedral optical deflector (e.g., element 150 of Fig. 3; paragraph 42 of the specification) including a first surface (e.g., element 151 of Fig. 3; paragraph 42 of the specification) and a second surface (e.g., element 152 of Fig. 3; paragraph 42 of the specification), the first surface and the second surface on opposite sides of a normal line orthogonal to the light incident surface and being more distant from each other as distance from the light incident surface increases (e.g., paragraph 42 of the specification).

Finally, claim 1 recites: wherein the optical deflector is disposed on at least one of the light emitting surface and a surface opposite to the light emitting surface (e.g., element 150 of Fig. 3; paragraph 42 of the specification).

**Claim 10:**

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Claim 10 generally relates to a light guide panel of an edge-light type backlight system using a rod-shaped light source (e.g., paragraphs 02, 04 39 of the specification; element 110 of Fig. 3).

Claim 10 recites that the light guide panel comprises a light incident surface into which light enters (e.g., element 112 of Fig. 3; paragraph 41 of the specification).

Claim 10 further recites that the light guide panel comprises: a light emitting surface from which light is emitted (e.g., elements 114, 115 of Fig. 3; paragraph 41 of the specification).

Claim 10 also recites that the light guide panel comprises: an optical deflector protruding from at least one of the light emitting surface and a surface opposite to the light emitting surface (e.g., element 150 of Fig. 3; paragraph 42 of the specification), a cross-section of the optical deflector in parallel to the light emitting surface being in the shape of a triangle whose bottom side is a surface opposite to the light incident surface, the triangular cross-section being extended in a direction perpendicular to the light emitting surface (e.g., element 150 of Fig. 3; paragraph 42 of the specification).



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**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The sole ground of rejection to be reviewed on appeal is:

The rejection of claims 1-14 under 35 U.S.C. § 103 as being unpatentable over Kraft (U.S. Publication No. 2003/0147259) in view of Umemoto et al (U.S. Patent No. 6,616,289).

**VII. ARGUMENT**

**Claim 1:**

Appellant submits that claim 1 is patentable over Kraft (U.S. Publication No. 2003/0147259) and Umemoto et al (U.S. Patent No. 6,616,289) at least because this combination of references does not teach or suggest “a rod-shaped light source which projects light to the light incident surface”, in combination with the other elements of the claim.

In the rejection (e.g., paragraph bridging pages 3 and 4 of the Office Action dated December 1, 2005), the Examiner cites Kraft as teaching all the elements of claim 1, except for using a rod-shaped light source. The Examiner relies, however, on Umemoto et al as teaching this feature and concludes that it would have been obvious to combine the rod-shaped light of Umemoto et al with the device of Kraft , “since the use of point source lights and rod/tube lights are equivalents in the art and the use of the rod-shaped source would reduce the number of parts in the device.”

Appellant had argued (Response filed March 1, 2006, page 4) that the Examiner’s proposed combination is improper because Kraft teaches away from this combination. Appellant argued that paragraph 0038 of Kraft states: “Light flux enters the tapered light guide area from fiber optics or a light pipe and as such is highly organized as a flux rather than a wide spread beam. The tapered light guide provides an area where the light flux can be evenly averaged and distributed across the proximal end of the emitting area of the light emitting panel by internal reflection.” Thus, Kraft teaches away from using a rod-shaped light.

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In the Office action dated April 13, 2006, at the bottom of page 5, the Examiner responded to that argument by stating: “The fact that Kraft states that the device is preferably used with fiber optics or a light pipe does not mean that the device cannot be used with a rod-shaped light or that Kraft teaches away from using a rod-shaped light.” Appellant respectfully disagrees with this reasoning.

Kraft states in paragraph 0038: “Light flux enters the tapered light guide area from fiber optics or a light pipe and as such is highly organized as a flux rather than a wide spread beam.” Kraft does not say that this is a preferred embodiment; rather this is the only way Kraft describes the light as entering the tapered area. Kraft specifically teaches away from a wide spread beam. Kraft does not say that it is preferred not to have a wide spread beam; rather Kraft describes how his invention operates to avoid a wide spread beam. One of the objects of Kraft’s invention is “to provide a method to efficiently extract light in a continuous and at a predetermined rate from optical other light guides.” If Kraft’s device were modified to provide a rod-shaped light source to project light onto the light guide panel as suggested by the Examiner, this object of Kraft’s invention would not be achieved. The device would utilize light far less efficiently and frustrate Kraft’s object of invention.

In paragraph 0012 Kraft summarizes his invention as follows: “A tapered light guide injector that has the shape and size of the light flux transporting light pipe on one end and the shape and size of the light panel on the other end provides an area where light flux is arranged by total internal reflection to preserve the light flux etendue and distribute the light evenly across the light input edge of the light emitting zone.” (Underscoring added.) It is clear that a central

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aspect of Kraft's invention is to have the tapered part of the light guide be of the same shape and size as the light source. Modifying Kraft to provide a rod-shaped light source which projects light to the light incident surface would violate one of the central aspects of Kraft's invention.

At least for the reasons above, Appellant submits that there is no motivation to combine the teachings of Kraft and Umemoto as proposed by the Examiner, and at least for this reason, Appellant submits that claim 1, and its dependent claims 2-9, are patentable over Kraft and Umemoto.

Claim 10:

Claim 10 recites "a light incident surface into which light enters", and the light source is defined as "a rod-shaped light source". Appellant submits that claim 10 is not obvious over Kraft and Umemoto for reasons similar to those presented above in the discussion of claim 1. That is, there is no motivation to modify the device of Kraft to provide a rod-shaped light source. At least for this reason, claim 10, as well as dependent claims 11-14, are patentable over Kraft and Umemoto.

Appellant respectfully requests that the rejection of claims 1-14 not be sustained.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

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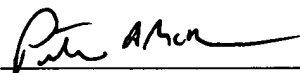
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Date: February 13, 2007

**CLAIMS APPENDIX**

**CLAIMS 1-14 ON APPEAL:**

1. An edge-light type backlight system comprising:  
  
a light guide panel including a light incident surface into which light enters and a light emitting surface from which light is emitted;  
  
a rod-shaped light source which projects light to the light incident surface; and  
  
a polyhedral optical deflector including a first surface and a second surface, the first surface and the second surface on opposite sides of a normal line orthogonal to the light incident surface and being more distant from each other as distance from the light incident surface increases,  
  
wherein the optical deflector is disposed on at least one of the light emitting surface and a surface opposite to the light emitting surface.
2. The edge-light type backlight system of claim 1, wherein a plurality of optical deflectors are arranged along the light incident surface.
3. The edge-light type backlight system of claim 1, wherein the optical deflector has the same refractive index as the light guide panel.

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4. The edge-light type backlight system of claim 1, wherein the optical deflector is integrally formed with the light guide panel.

5. The edge-light type backlight system of claim 1, wherein the first surface and the second surface are symmetrical about the normal line orthogonal to the light incident surface.

6. The edge-light type backlight system of claim 1, wherein the first surface and the second surface are extended up to a surface opposite to the light incident surface.

7. The edge-light type backlight system of claim 1, wherein the optical deflector further includes a third surface opposing the light emitting surface, and the third surface is parallel to the light emitting surface.

8. The edge-light type backlight system of claim 1, wherein a cross-section of the optical deflector in parallel to the light emitting surface is in the shape of a triangle whose oblique sides are the first and second surfaces and bottom side is opposite to the light incident surface.

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9. The edge-light type backlight system of claim 1, wherein a cross-section of the optical deflector in parallel to the light emitting surface is in the shape of a trapezoid whose oblique sides are the first and second surfaces and bottom surface is opposite to the light incident surface.

10. A light guide panel of an edge-light type backlight system using a rod-shaped light source, the light guide panel comprising:

a light incident surface into which light enters;

a light emitting surface from which light is emitted; and

an optical deflector protruding from at least one of the light emitting surface and a surface opposite to the light emitting surface, a cross-section of the optical deflector in parallel to the light emitting surface being in the shape of a triangle whose bottom side is a surface opposite to the light incident surface, the triangular cross-section being extended in a direction perpendicular to the light emitting surface.

11. The light guide panel of claim 10, wherein a plurality of optical deflectors are arranged along the light incident surface.



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12. The light guide panel of claim 10, wherein a cross-section of the optical deflector in parallel to the light emitting surface is in the shape of an isosceles triangle.

13. The light guide panel of claim 10, wherein the optical deflector further includes a third surface opposing the light emitting surface, and the third surface is parallel to the light emitting surface.

14. The light guide panel of claim 10, wherein the optical deflector is extended up to a surface opposite to the light incident surface.

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**EVIDENCE APPENDIX:**

NONE

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**RELATED PROCEEDINGS APPENDIX**

NONE